

$$b) -\{I(x-1, y-1) + 2 \cdot I(x-1, y) + I(x-1, y+1)\}$$

In the Claims

Please amend claims 1, 28, and 31-35 to read as follows:

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1. (Amended) An image processing apparatus comprising:
 gradient calculation means for calculating at least the direction of the level gradient of a processing unit in a given image data including a plurality of pixels, the pixels respectively having level data;
 line segment formation means for producing line segment image data representing a line segment having a given length and a direction corresponding to the direction of the level gradient which is calculated by said gradient calculation means; and
 line segment image storage means for storing the line segment image data produced by said line segment formation means.

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28. (Amended) An image processing apparatus comprising:
 an image processing means for calculating at least the direction of the level gradient of a processing unit in given image data, and producing line segment data representing a line segment having a predetermined length and a direction corresponding to the calculated direction of the level gradient for each image data having a non-zero level gradient; and
 display means for displaying a line segment image represented by the line segment image data produced by said image processing means.

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31. (Amended) An image processing method comprising the steps of:
 calculating at least the direction of the level gradient of a processing unit in given image data including a plurality of pixels, the pixels respectively having level data;

producing line segment image data representing a line segment having a predetermined length and a direction corresponding to the calculated direction of the level gradient for each pixel having a non-zero level gradient; and
storing the produced line segment image data in storage means.

32. (Amended) A medium storing a program for controlling a computer so as to:
calculate at least the direction of the level gradient of a processing unit in given image data including a plurality of pixels, the pixels respectively having level data;
produce line segment image data representing a line segment having a predetermined length and a direction corresponding to the calculated direction of the level gradient for each pixel having a non-zero level gradient; and
store the produced line segment image data in storage means.

33. (Amended) An image processing method comprising:
calculating at least the direction of the level gradient of a processing unit in given image data, and
producing line segment image data representing a line segment having a predetermined length and a direction corresponding to the calculated direction of the level gradient for each image data having a non-zero level gradient; and
displaying a line segment image represented by the produced line segment image data on a display device.

34. (Amended) A medium storing a program for controlling a computer so as to:
calculate at least the direction of the level gradient of a processing unit in given
image data, and produce line segment image data representing a line segment having a
predetermined length and a direction corresponding to the calculated direction of the level
gradient for each processing unit having a non-zero level gradient; and
display a line segment image represented by the produced line segment image data
on a display device.

By 35. (Amended) An image processing apparatus comprising:
means for extracting a plurality of edges whose level gradients are not less than a
predetermined value in given image data;
means for setting, for each of the edges, a line segment extending a predetermined
length in a direction corresponding to the direction of the extracted edge; and
means for detecting the presence or absence of a point of intersection of a plurality
of line segments and the position thereof.

Please add the following new claims 43-46:

Sub 43. (New) The image processing apparatus according to claim 1, wherein the
direction of the level gradient is a direction of a composite vector of a vector having a level
gradient along the X axis and a vector having a level gradient along the Y axis.

35 44. (New) The image processing apparatus according to claim 28, wherein the
direction of the level gradient is a direction of a composite vector of a vector having a level
gradient along the X axis and a vector having a level gradient along the Y axis.

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45. (New) The image processing apparatus according to claim 35, wherein the direction of the level gradient is a direction of a composite vector of a vector having a level gradient along the X axis and a vector having a level gradient along the Y axis.

46. (New) The image processing apparatus according to claim 37, wherein the direction of the level gradient is a direction of a composite vector of a vector having a level gradient along the X axis and a vector having a level gradient along the Y axis.
